

Implementation Costs and Funding Sources

This section provides an estimated cost for implementing the LCR MSCP Conservation Plan (Section 7.1) and the source of funding to meet those costs (Section 7.2).

7.1 Cost to Implement the LCR MSCP

This section provides an estimate of the cost for implementing the LCR MSCP Conservation Plan. The analysis required many assumptions to be made regarding how the Conservation Plan will eventually develop and the unit cost for many items. Table 7-1 summarizes the costs associated with the implementation of the 50-year LCR MSCP. Cost categories include: program administration; land acquisition; planning, design, and engineering; habitat creation; environmental compliance; fish augmentation; conservation area management and maintenance; additional law enforcement and firefighting staff; existing habitat maintenance; Topock Marsh pumping; research, monitoring, and adaptive management; remedial measures; and water acquisition. Costs are summarized by 5-year period. Costs are based on the assumptions that 8,132 acres would be created, and that 30 conservation areas would be created under the LCR MSCP. All costs are in 2003 dollars. Implementation costs shall be adjusted annually for inflation.

This chapter provides a brief explanation of each cost category and an explanation of how costs in the category were derived.

7.1.1 Program Administration

Program administration cost involves the support of staff, facilities, and equipment to operate the office of the Program Manager within Reclamation (see Chapter 6, “Governance and Implementation Structure”). It is assumed that program administration costs would be necessary throughout the 50-year LCR MSCP. Program administration employees that are expected to be funded are the Program Manager, two group managers, a senior scientist, an information technology/database manager, a cooperative agreements and grant agreements specialist, a budget analyst, two secretaries, and a clerk.

These costs are based on the assumption that the Reclamation would host the Program Manager, and that support personnel would be Reclamation employees. The costs

include the yearly salary for each employee plus the costs of benefits, regional overhead, and LCR MSCP overhead.

Staff for planning, engineering, and design; fish augmentation and monitoring; conservation area management and maintenance; and research, monitoring, and adaptive management are part of the LCR MSCP office, but staff costs are considered project costs and are included within the other cost categories.

For additional assumptions about the program administration cost category, see Section N.1 in Appendix N.

7.1.2 Land Acquisition

To estimate LCR MSCP Conservation Plan implementation costs, it is assumed that one-third of the land required for creation would be purchased from private landowners, one-third would be leased from tribes, and one-third would be public land. The purchase cost for private land is assumed to be \$6,000 per acre. The lease cost for tribal land is assumed to be \$325 per acre per year. Land purchased and lease costs will certainly vary across the LCR MSCP planning area, but these costs were used as reasonable estimates of average costs. It is assumed that public land has no associated land acquisition costs. Because of the need for additional land to support conservation area infrastructure and buffer areas, it is assumed that 1.15 times more land than is needed for meeting habitat creation goals would be bought and leased.

For additional assumptions about the land acquisition cost category, see Section N.2 in Appendix N.

7.1.3 Planning, Design, and Engineering

It is assumed that the staff who conduct planning, engineering, and design work would also conduct creation work. Planning, design, and engineering employees that are expected to be funded are three project managers and three technical support staff. One-third of these staff positions would be funded for planning, engineering, and design. The remaining two-thirds would be funded for the habitat creation cost category (Section 7.1.4).

These costs are based on the assumption that planning, design, and engineering personnel would be Reclamation employees. Annual costs for each position include salary, benefits, overhead, and travel costs. Planning, design, and engineering positions are funded annually for years 1–20.

In addition to staff costs, it is assumed that technical costs for planning, engineering, and design would be incurred for each conservation area. These costs are assumed to vary with the level of development of the land on which the conservation area would be created, ranging from \$100,000 per conservation area for conservation areas that are on agricultural land and would require no additional design to \$240,000 per conservation

Table 7-1. Summary of LCR MSCP Conservation Plan Implementation Costs (rounded to the nearest \$10,000)^a

| Cost Category | Years 1–5 | Years 6–10 | Years 11–15 | Years 16–20 | Years 21–25 | Years 26–30 | Years 31–50 | Total |
|---|--------------|---------------|---------------|--------------|--------------|--------------|---------------|---------------|
| Program administration | \$5,090,000 | \$5,090,000 | \$5,090,000 | \$5,090,000 | \$5,090,000 | \$5,090,000 | \$20,370,000 | \$50,910,000 |
| Land acquisition | \$1,000,000 | \$14,500,000 | \$7,250,000 | \$7,250,000 | \$5,000,000 | \$5,000,000 | \$20,000,000 | \$60,000,000 |
| Planning, design, and engineering | \$1,590,000 | \$2,990,000 | \$3,210,000 | \$3,270,000 | \$0 | \$0 | \$0 | \$11,060,000 |
| Habitat creation | \$11,560,000 | \$43,850,000 | \$43,860,000 | \$43,860,000 | \$0 | \$0 | \$0 | \$143,130,000 |
| Environmental compliance | \$380,000 | \$950,000 | \$950,000 | \$780,000 | \$0 | \$0 | \$0 | \$3,060,000 |
| Fish augmentation | \$4,000,000 | \$6,000,000 | \$4,000,000 | \$3,000,000 | \$3,000,000 | \$3,000,000 | \$11,000,000 | \$34,000,000 |
| Conservation area management and maintenance | \$2,410,000 | \$2,710,000 | \$4,780,000 | \$5,130,000 | \$5,130,000 | \$5,890,000 | \$26,620,000 | \$52,670,000 |
| Law enforcement staff | \$500,000 | \$500,000 | \$500,000 | \$930,000 | \$930,000 | \$930,000 | \$3,710,000 | \$8,000,000 |
| Firefighting staff | \$500,000 | \$500,000 | \$930,000 | \$1,350,000 | \$1,350,000 | \$1,350,000 | \$5,390,000 | \$11,370,000 |
| Existing habitat maintenance | \$2,500,000 | \$22,500,000 | \$0 | \$0 | \$0 | \$0 | \$0 | \$25,000,000 |
| Topock marsh pumping | \$540,000 | \$240,000 | \$240,000 | \$240,000 | \$240,000 | \$240,000 | \$960,000 | \$2,700,000 |
| Monitoring, research, and adaptive management | \$24,000,000 | \$29,670,000 | \$28,170,000 | \$19,170,000 | \$11,000,000 | \$11,000,000 | \$38,000,000 | \$161,010,000 |
| Remedial measures | \$0 | \$1,330,000 | \$3,980,000 | \$3,980,000 | \$3,980,000 | \$0 | \$0 | \$13,270,000 |
| Water acquisition | \$2,000,000 | \$6,870,000 | \$7,860,000 | \$5,860,000 | \$5,000,000 | \$5,000,000 | \$17,410,000 | \$50,000,000 |
| Total (in 2003 dollars) | \$56,070,000 | \$137,700,000 | \$110,820,000 | \$99,910,000 | \$40,720,000 | \$37,500,000 | \$143,460,000 | \$626,180,000 |

Notes:

^a Assumptions used to develop this cost estimate are provided in Sections 7.1.1–7.1.14.

^b A total of \$25,000,000 would be contributed for maintenance of existing habitat, with \$2,500,000 contributed in years 1–5 and \$22,500,000 in years 6–10. These contributions would be placed in an interest-bearing account and used for maintaining existing habitat throughout the 50-year term of the LCR MSCP.

area for conservation areas that are on undeveloped land and would require additional design.

For additional assumptions the planning, design, and engineering cost category, see Section N.3 in Appendix N.

7.1.4 Habitat Creation

It is assumed that 5,940 acres of cottonwood-willow, 1,320 acres of honey mesquite, 360 acres of backwaters, and 512 acres of marsh would be created as part of the LCR MSCP. It is assumed that approximately 8 percent of the land cover types would be created in years 1–5, and approximately 30 percent would be created in years 6–10, 11–15, and 16–20, respectively. Although the schedule for creating LCR MSCP habitat assumes that all LCR MSCP habitat will be established over 30 years (Section 5.10, “Timing of Implementing Conservation Measures”), the cost estimate assumes that all the habitat could be created in the first 20 years of implementation if efficient habitat creation techniques are identified during the first few years of implementation.

Habitat creation includes costs for site preparation (including grading), planting stock, materials, site construction (including excavation), and irrigation system construction. The average creation costs per acre of each land cover type for those potential conservation areas for which a cost summary was developed are described in Table 7-2.

Table 7-2. Creation Costs per Acre by Land Cover Type and Method

| Land Cover Type | Method | Existing Land Cover Type | Cost per Acre |
|-------------------|----------|----------------------------|---------------|
| Cottonwood-willow | Creation | Undeveloped land | \$30,500 |
| Cottonwood-willow | Creation | Agricultural land | \$4,900 |
| Mesquite | Creation | Undeveloped land | \$11,600 |
| Mesquite | Creation | Agricultural land | \$4,600 |
| Marsh | Creation | Marsh | \$22,500 |
| Backwaters | Creation | River and undeveloped land | \$60,000 |

It is assumed that 40 percent of cottonwood willow and honey mesquite creation would occur on undeveloped land and 60 percent would occur on agricultural land.

Staff costs are assumed to include two-thirds of the positions and two-thirds of travel costs listed under the planning, engineering, and design cost category (Section 7.1.3). It is assumed that these positions would be funded annually for years 1–20.

For additional assumptions about the habitat creation cost category, see Section N.4 in Appendix N.

7.1.5 Environmental Compliance

It is assumed that environmental compliance would be required for all creation projects associated with conservation areas. It is assumed that creation projects of different sizes would incur different levels of environmental compliance costs. Environmental compliance costs include average costs for contracting the preparation and submittal of compliance documents and applications associated with the regulations and permits listed below.

- NEPA;
- sections 401 and 404 of the Federal Clean Water Act;
 - Nationwide Permit 27, “Stream and Wetland Restoration Activities;” and
- section 106 of the National Historic Preservation Act (NHPA) (cultural resource inventory only; if significant cultural resources are found, the cost of compliance with section 106 of the NHPA would increase considerably).

For additional assumptions about the environmental compliance cost category, see Section N.5 in Appendix N.

7.1.6 Fish Augmentation

Fish augmentation costs include the costs associated with spawning and rearing razorback sucker and bonytail, conducting research, and tagging and distributing the fish. It is assumed that four existing fish rearing facilities would rear 660,000 razorback sucker and 620,000 bonytail over the 50 years of the LCR MSCP: Willow Beach National Fish Hatchery, Achii Hanyo (a satellite facility of Willow Beach National Fish Hatchery), Dexter Technical Center, and Bubbling Ponds Hatchery. In addition, it is assumed that isolated rearing ponds would be used to complete rearing of both species and to conduct research. If additional facilities are needed, the LCR MSCP implementing entity would work with possible providers of additional facilities to meet the need.

For additional assumptions about the fish augmentation cost category, see Section N.6 in Appendix N.

7.1.7 Conservation Area Management and Maintenance

Conservation area management and maintenance include the costs associated with site managers; maintenance staff; law enforcement and firefighting personnel; and management and maintenance facilities, equipment, utilities, and activities. These staff, facilities, and equipment are in addition to the staff, facilities, and equipment for program administration described in Section 7.1.1. Conservation area management and maintenance employees that are expected to be funded are two site managers, two supervisors, two full-time laborers, and two half-time laborers.

These costs are based on the assumption that management and maintenance personnel would be Reclamation employees. Annual costs for each position include the salary, benefits, and overhead costs described under the program administration cost category (Section 7.1.1). However, conservation area management and maintenance staff would report to the Yuma regional office, where regional office overhead is 15 percent higher.

It is assumed that there would be one site manager for every 5,000 acres of conservation area land and one laborer for every 2,000 acres of conservation area. A field facility would be built for every site manager. It is assumed that one vehicle would be leased for every site manager, and one vehicle would be leased for every two maintenance workers.

Additional maintenance costs include the costs to maintain this other equipment, fences, and roads; to pump water for irrigation of creation sites; to dredge backwaters; to control cowbirds; and to maintain nesting boxes.

In addition to routine maintenance performed by the site managers and laborers, it is assumed that major habitat maintenance would be conducted by staff from the Yuma area office. Major habitat maintenance includes replacement and maintenance of the equipment required for such maintenance.

For additional assumptions about the conservation area management and maintenance cost category, see Section N.7 in Appendix N.

7.1.8 Law Enforcement Staff

It is assumed that BLM, USFWS, AGFD, CDFG, and NDOW employees would conduct law enforcement activities, and that the LCR MSCP would fund the appropriate number of employees needed to cover additional LCR MSCP land (land that was not already in public ownership).

The cost of employing this additional staff is based on the cost per employee per year of Reclamation law enforcement staff.

It is assumed that one additional law enforcement officer would be needed for each additional 5,000 acres of conservation area. To put this number in context, the current level of law enforcement along the LCR corridor is approximately one law enforcement employee per 24,000 acres. This number is based on the number of employees from the BLM, AGFD, CDFG, NDOW, and USFWS that currently work along the river corridor and is based on the assumption that the area covered by law enforcement along the LCR is similar in extent to the LCR MSCP planning area (Werner pers. comm.). Most employees work just along the river corridor; however, some employees have districts that are not limited to the river corridor, so the number might be an underestimate. In addition, sheriff offices along the river occasionally patrol the river; watercraft officers regularly patrol by boat, primarily to enforce watercraft laws (Werner pers. comm.).

For additional assumptions about the law enforcement staff cost category, see Section N.8 in Appendix N.

7.1.9 Wildland Firefighting Staff

It is assumed that the LCR MSCP would also fund the appropriate number of wildland firefighters needed to cover additional LCR MSCP land (land that was not already in public ownership). It is expected that one additional wildland firefighter would be needed for each 2,500 acres of conservation area. This is believed to be more than sufficient because the Lower Colorado River Interagency Fire Management Group (which is the consolidated fire program for the BLM, USFWS, and BIA in the approximately 3 million acres covered by the BLM's Lake Havasu and Yuma field offices and other USFWS and BIA lands within the field office boundaries) employs 33 people, with jobs ranging from fire management officer to crew person (Werner pers. comm.). This number equates to approximately one fire-related employee per 91,000 acres.

It is assumed that the site manager and maintenance personnel (Section 7.1.7) would implement the fire management plan.

For additional assumptions about the wildland firefighting staff cost category, see Section N.9 in Appendix N.

7.1.10 Existing Habitat Maintenance

In years 1–5, \$2,500,000 would be contributed for maintenance of existing habitat. This contribution would be placed in an interest-bearing account and used for maintaining existing habitat throughout the 50-year LCR MSCP. An additional \$22,500,000 will be deposited in the account during years 6–10. This additional contribution will provide a total of \$25,000,000 to be used for the maintenance of existing habitat within the planning area of the LCR MSCP.

7.1.11 Topock Marsh Pumping

It is assumed that pumps would be purchased to deliver water to Topock Marsh and that the cost of pumping throughout the 50-year LCR MSCP would be covered. For additional assumptions about the Topock Marsh pumping cost category, see Section N.10 in Appendix N.

7.1.12 Monitoring, Research, and Adaptive Management

Monitoring, research, and adaptive management costs include restoration research, species research, postdevelopment monitoring, and system monitoring. These costs are based on extrapolation of Reclamation's current monitoring and research costs to cover the entire LCR MSCP monitoring, research, and adaptive management program.

System monitoring would include the monitoring of existing populations and habitats of covered species to determine their status, distribution, density, migration, productivity, and other ecologically important parameters. System monitoring would be implemented annually, with decreasing intensity over the term of the LCR MSCP. Costs for system monitoring would include the development of a monitoring database.

Species research includes research on basic life history data such as food habits; migration timing; and the physical, chemical, and biological limiting factors necessary to design, construct, and manage the habitats necessary to ensure the continued survival of the species. It is assumed that the LCR MSCP would coordinate with, participate in, and/or build upon existing research for these species.

Restoration research includes basic research on cottonwood-willow, honey mesquite, marsh, and backwater development and management. Research would be conducted on such topics as seed collection and dispersal; irrigation techniques; soil conditioning techniques; fish rearing techniques; and equipment needs, use, and storage. In addition, site evaluations would be conducted to collect the information necessary to select conservation areas based on the conservation area site selection criteria.

Postdevelopment monitoring includes evaluation of the development of covered species habitat in each conservation area (e.g., growth of vegetation, development of constituent elements of species habitat) and use of the habitat by covered species. Data collected about how created habitat develops relative to the habitat creation techniques used to establish and maintain the habitat will be used to refine management techniques and ensure that the most cost-effective approaches are employed (e.g., water management). In addition, postdevelopment monitoring for created habitats also includes monitoring of the minimum requirements for achieving habitat creation goals. Management of the monitoring database is also included under postdevelopment monitoring.

For additional assumptions about the monitoring, research, and adaptive management cost category, see Section N.11 in Appendix N.

7.1.13 Remedial Measures

Remedial measures are actions that the LCR MSCP Implementing Entity will take in response to changed circumstances. It is assumed that the cost of remedial measures will be 10 percent of the total cost of habitat creation. This assumption is based on the following considerations.

- Based on past experience developed through habitat restoration projects implemented in the LCR MSCP planning area, techniques for creating habitats along the LCR have improved substantially and the likelihood for success is considered to be greater than for past efforts.
- Unlike past habitat restoration efforts, the LCR MSCP Conservation Plan criteria for selecting habitat creation sites are designed to select sites with the greatest potential for success (e.g., agricultural lands), thus removing a primary cause for the failure of past habitat restoration efforts.

- Unlike past habitat restoration efforts, the LCR MSCP Conservation Plan includes funding for long-term care and maintenance of created habitats (i.e., there are funds committed for averting failure through ongoing habitat maintenance activities that are in addition to funding provided for remedial measures).
- The LCR MSCP Conservation Plan provides funding for long-term monitoring and research to provide information necessary to adaptively manage its implementation to improve implementation success over time. Through adaptive management, therefore, it is expected that the likelihood for failure of created habitats will continuously decline over time as methods are improved.
- Techniques for rearing razorback sucker and bonytail are now well advanced and the likelihood for failure is low.

7.1.14 Water Acquisition

Water acquisition costs can be calculated in a number of ways. For example, water rights can be bought or leased by the acre along with agricultural lands or, when land does not come with associated water rights, water can be bought separately by the acre-foot. In addition, an annual use fee, or “indemnification fee,” of some predetermined contractual amount could be paid for fallowing land. The majority of the proposed programs along the LCR to date (Metropolitan-PVID and Metropolitan-IID) have involved a water conservation program that has created water for use in the M&I sectors outside of the LCR MSCP planning area. Consequently, the costs associated with these programs reflect the costs associated with the water conservation program and the subsequent shift to the urban sector. These costs may not accurately reflect the costs associated with conserving water in an agricultural district and then using the saved water for habitat conservation purposes in another portion of the same district or in the same general locale. The water purchase cost that is used in this cost estimate is based on the costs recently agreed to between PVID and Metropolitan, and is assumed to be \$206 per acre-foot.

For additional assumptions about the water acquisition cost category, see Section N.12 in Appendix N.

7.2 Funding Sources and Assurances

By letters dated August 17, 2004 the water and power agencies of Arizona, California, and Nevada committed to the Secretary of the Interior to share the current estimate of LCR MSCP costs equally with the United States on a 50/50 Federal/non-Federal basis. The Federal and non-Federal funding levels will be adjusted in accordance with an inflation index to assure that the funding is sufficient to provide for increased costs due to inflation through the term of the LCR MSCP.

The Federal parties agree to assure funding of their 50 percent share of the LCR MSCP costs. In addition, the Federal parties agree to assure funding for any increased cost of the LCR MSCP, except for inflationary increases as described above and any costs

1 associated with coverage of any additional species or resulting from any additional
2 covered actions or activities.

3 The non-Federal parties agree to assure funding of their 50 percent cost share. The non-
4 Federal cost share will be paid as follows: California parties will pay 50 percent of the
5 non-Federal share of the costs, and Arizona and Nevada parties will each pay 25 percent
6 of the non-Federal share of the costs.

7 To confirm their funding commitments, the non-Federal parties will execute an FMA
8 providing for the funding, implementation and management of the LCR MSCP. The
9 draft final FMA is attached to this HCP as Exhibit A. The final form and execution of
10 the FMA by each non-Federal party is subject to the approval and authorization of the
11 governing body of that party.